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ABSTRACT

This protocol study: (1) tested the instructional use of a model of the decision processes involved in revising after feedback; (2) examined whether feedback specifying a text problem was a stronger cue to revision than feedback summarizing the point of a paragraph or predicting forthcoming text; and (3) compared the quality of texts revised after feedback with those revised without feedback. Twenty-four writers in basic writing classes at a northwestern university wrote a paper of advice to a 12th-grader about writing a college application essay. One week later, writers revised their papers, first as they wished, and next after receiving interpretive feedback from two 12th-graders. The experimental group was given a visual and verbal graphic of the decision processes in revising after feedback. The control group was asked to revise in light of the feedback. Results indicate that the prompt specifying decision processes had no effect, and that writers responded more to feedback specifying a whole text problem than to feedback summarizing the point of a paragraph or predicting forthcoming text. Although the quality of all texts revised after feedback was judged higher than that of texts revised before feedback, between-group differences were not significant. Three data tables, 1 figure, and a 69-item list of references are included. Five appendices provide directions for completing the study tasks. (SLD)

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"If They're Confused You Have to Help Them:"

Writers Respond to Feedback

Barbara M. Sitko

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Running Head: Revising after Feedback

Paper presented at the annual meeting of the American Educational Research Association, Chicago, 1991. This investigation was supported in part by funds provided by Washington State University.

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Abstract

This protocol study 1) tests the instructional use of a model of the decision processes involved in revising after feedback, 2) examines whether feedback that specifies a text problem is a stronger cue to revision than feedback that summarizes the point of a paragraph or that predicts forthcoming text, and 3) compares the quality of texts revised after feedback with the quality of texts revised without feedback. 24 writers enrolled in basic writing classes at a northwestern university wrote a paper giving advice to a 12th grade student about writing a college application essay. One week later, writers revised their papers, first as they wished, then after receiving interpretive feedback from two 12th grade students. Interpretive feedback was defined as periodic summaries of points and predictions about forthcoming text. Writers were randomly assigned to one of two groups. Writers in the experimental group were given a visual and verbal graphic of the decision processes involved in revising after feedback (Sitko, 1989). Writers in the control group were instructed to do their best to revise in light of the feedback. Results indicate 1) that the prompt specifying decision processes had no effect, and 2) that writers responded more to feedback specifying a whole text problem than to feedback summarizing the point of a paragraph or predicting forthcoming text, and 3) that although quality of all texts revised after feedback was judged to be significantly higher than the quality of texts revised before feedback, between group differences were not significant.

"If They're Confused You Have to Help Them:"
Writers Respond to Feedback

Revising after feedback involves complex acts of cognition, decision making, and rhetorical expertise. To further complicate this picture, learning to revise after feedback often takes place in schools, where students are asked to revise texts in response to both teachers and peers. Revising writing authored in this social context is necessarily influenced by the social structure of the relationships among writers and readers (Freedman, 1987). Nonetheless, revising in this social context can be viewed as problem-solving (Flower and Hayes, 1981). Like learning to write, learning to revise involves the cognitive processes of experimenting with the way words work, testing various ways of producing an effect, being attentive to feedback, and modifying texts to achieve a purpose.

An important part of a developing writer's skill is learning how to work with the verbal responses of others, or feedback. Likewise, an important part of teachers' instruction is providing opportunities for revising after feedback. Teachers' practice reflects our belief that feedback influences the ways in which students think about their writing, particularly their representation of the needs of their audience. But, although it is important to know how students think about learning, little research has focused on the thinking processes of students as they work with feedback, and we know surprisingly little about them. It is this gap that the present research addresses.

Research Review

This study draws on two major bodies of research, revision as a cognitive process and the design of strategic instruction.

Research in Revision as a Cognitive Process

Revising after feedback can be said to represent a special case of problem-solving, in that feedback provides the writer with new and specific information about

how a text has met the writer's goals. Feedback thus provides either confirming or disconfirming evidence about the success of a text. Research that informs this view of feedback include work on revising as problem solving (how students think about revising and readers) and response to writing (feedback).

Revision as Problem Solving. That revision is a subprocess of the cognitive process of composing (Flower & Hayes, 1981) is a point of general agreement. The specific mental moves involved in revising have been described in similar ways. The Compare-Diagnose-Operate (CDO) model (Bereiter and Scardamalia, 1987) posits three central moves made by writers working on their own texts. A more elaborate model is derived from research on how experts and novices revise texts written by another (Hayes, Flower, Schriver, Stratman & Carey, 1987). In this model, five dimensions are arranged on a continuum: task definition, evaluation, selection of the strategy of rewriting, selection of the strategy of revising, and text modification. Derived from somewhat different approaches to revision, both models nonetheless demonstrate that what might appear to be a highly personal, even idiosyncratic activity can be simplified to a few basic operations. According to these cognitive process models, the universe of possible moves and therefore decisions available to writers appears quite limited.

The relative simplicity of the operations involved in revising is echoed in research on revision defined as the changes writers make to text. Revision moves consist principally of deletion and addition, with substitution and re-ordering, essentially combinations of deletion and addition usually added as separate categories (Bereiter & Scardamalia, 1987; Bridwell, 1980; Faigley & Witte, 1984). These moves occur throughout the writing process (Nold, 1981), before a text is inscribed (Scardamalia & Bereiter, 1986; Murray, 1978) as well as after. Although the categories are often the focus of revision studies, these observable behaviors are only the final decision of a sequence of mental moves. The sequence begins with detection, the recognition of dissonance or incongruity between intended and instantiated text (Bereiter

and Scardamalia, 1987; Della-Piana, 1978; Faigley & Skinner, 1982; Flower & Hayes, 1981; Perl, 1979; Sommers, 1980). Bartlett has characterized the necessary operation at this beginning point as recognizing a dissonance between intention and instantiated text. Detection, however, may be hindered by the inability to see one's own words from the perspective of another (Bartlett, 1982; Kroll, 1980; Flower, 1979).

Inability to see a text from multiple perspectives is addressed by research specifying the thinking processes of experienced and less experienced writers. Two important factors that appear to discriminate these groups of writers focus on representation: the ways writers represent the task of revision and the ways they represent audience. It is apparent that experienced writers view revision as reshaping a text rather than making lexical changes (Flower & Hayes, 1980b; Sommers, 1978). Inexperienced writers, however, tend to represent revision as proofreading (Bartlett, 1982; Matsuhashi & Gordon, 1985). This difference indicates that learning to write involves developing both a different representation of what revising can be and procedures for changing a text.

In addition to representing the task of revising differently, inexperienced writers consider the needs of their readers less during composing (Flower, 1979; Flower & Hayes, 1980a), whether adult (Rafoth, 1985; Redd-Boyd, 1989) or young (Kroll, 1980). The characteristic mark of this kind of writing, "knowledge-telling," (Bereiter & Scardamalia, 1987) retells facts and ideas from the point of view of the writer rather than from the point of view of the readers' needs. Inexperienced and younger writers persist in "knowledge-telling" even when these writers are prompted to plan their texts in alternative ways (Burtis, Scardamalia, Bereiter, & Tetroe, 1983). Learning to write must include some practice in helping students to represent their readers.

From students' reports about their writing practices, it is apparent that most do not represent their revision task as making whole-text changes to meet readers' needs.

Students report that they make word-level editing changes more frequently than they do substantive changes (Applebee, 1981; Applebee, Langer, & Mullis, 1986). Part of the difficulty may lie in the school context in which writing is often produced for a "teacher-examiner" (Britton et al, 1975; Brannon & Knoblach, 1982). Revising in response to the needs of a "real reader" might be quite different from responding to the inspection of a teacher. Yet students apparently get little practice in writing for readers other than their teachers.

Feedback. The most common instructional method used to alter inexperienced writers' representation of the needs of their readers are comments of teachers and peers, here called feedback. Results of research are mixed. Research on responses to student writing indicates that many students are unable to use the responses. It may be that the responses are not sufficiently explicit to be useful or that teachers' intentions are not clear to students (Sommers, 1980; Ziv, 1984). Or it may be that the variety of feedback makes it difficult for researchers to trace the links between feedback and revision, although the most useful feedback appears to be directly linked to instruction (Hillocks, 1982). It may even be that feedback provides writers with new cognitive hurdles that absorb processing energy with new information, and thus writers have difficulty making sense of comments on their texts (Hayes and Daiker, 1984).

Research on peer comments indicates equally mixed results, showing, for example, that peer groups may interfere with a writer's sense of authority over her own text (Berkenkotter, 1984), that students imitate the practices of their teachers rather than responding as themselves (Freedman, 1987), or that peers form distinctly different evaluative communities from their teachers (Newkirk, 1978). Other studies have shown that given specific information about their audience, inexperienced writers can use that information to compose texts (Rafoth, 1985) and to predict the likelihood of reader problems (Schriver, 1987).

Research in Strategic Instruction

A growing body of research in instruction in cognitive processes suggests that the more we know about how our cognitive processes work, the better we perform. Knowledge about memory processes, for instance, has been shown to be highly correlated with subsequent memory performance (Schneider, 1985). Strategic knowledge has benefits that extend beyond the cognitive, directly influencing, for instance, self-concept, attitudes about learning, and attributional beliefs about personal control (Borkowski, Carr, Rellinger, & Pressley, 1990). By influencing learners' convictions about their own control of outcomes, strategic knowledge is related to self-efficacy outcomes like initiation of problem-solving processes, persistence (Bandura, 1977) and self-regulation (Zimmerman, 1990).

Although much of the research in cognitive process instruction has been done in experimental settings, the work has theoretical and practical implications for general classroom instruction as well (Brown, A. L., Armbruster, B. B., & Baker, L., 1986; Dansereau et al., 1979; Weinstein & Underwood, 1985). If according to a cognitive process model, a particular activity is theoretically important, then teaching it to writers who do not use it should improve performance (Garner, 1986; Resnick, 1987).

Researchers who follow this line of reasoning often ground their theories in Vygotsky's description of the "zone of proximal development," the learning stage in which one has begun to form mental processes that are not yet fully operational, and so cannot be evoked independently. With help in the form of a full or partial model, one can operationalize the internal processes (Vygotsky, 1978). Pedagogical methods grounded in this theory include "scaffolding" (Bruner, 1978), "procedural facilitation" (Bereiter & Scardamalia, 1987), "reciprocal teaching" (Brown & Palinscar, 1985), and "cognitive apprenticeship" (Collins, 1987).

Strategy Selection and InstructionOne of the important questions in instructional research concerns which processes and strategies should be studied. Garner (1986) suggests two criteria for "candidate strategies:" 1) that the strategies are necessary for

successful performance of a task, but some learners do not use them spontaneously; and 2) that the strategies must be close enough to what learners normally do so that under normal pressures they will remember and use them. Identifying the strategies that are needed to fulfill these criteria calls for task analysis, requiring that we know both what a person is thinking and what a person ought to be thinking while performing a task (Belmont & Butterfield, 1977). To be useful instructionally, task analysis should produce a description of a detailed sequence of operations (Case, 1978). Explicitness is another crucial factor, influencing students' awareness and attention (Duffy, Book and Roehler, 1983).

Results of process instruction in academically fundamental areas such as reading (Campione & Armbruster, 1984; Palinscar & Brown, 1983) and writing (Bereiter & Scardamalia, 1987) have indicated that instruction in strategies is beneficial to certain young populations. Instruction based on research in revision has followed lines similar to intervention research in other areas. One direction an intervention can take is modification of learning materials, typically in the direction of explicitness. Matsuhashi and Gordon (1985), for example, provided differing task instructions, hypothesizing that students did not revise successfully because they represented the task in ways different from experienced writers. Directed to locate places in their texts where they might "add" rather than "revise," students significantly increased text-based revisions over surface revisions. The other direction an intervention can take is modification of strategic processes. Such interventions extend strategy use and, it is hypothesized, increase the learners' capacity to process information effectively, making learning less dependent on future instruction (Fredericksen, 1984).

Revision Strategies. Instruction based on theoretical models of revision as problem-solving has succeeded in modifying writers' revision practices and improving text quality. In addition to the line of research conducted by Scardamalia and Bereiter (1987) who have documented instruction in each of the subprocesses of their CDO

model, revision instruction has been researched by Fitzgerald and Markham (1987) who taught 6th graders how to detect where a reader might have difficulty. DeRemer and Bracewell (1989) used Fredericksen's semantic frame analysis (1986) to call writers' attention to points in their texts where information needed to be added or deleted. Both semantic frame analysis and quality ratings of the resulting revisions indicated that these writers were capable of making revisions that significantly improved the quality of their texts.

Although strategic instruction in revising has been effective, a crucial issue that remains to be examined is how writers make decisions about revising. In the Fitzgerald and Markham study, writers able to detect where changes needed to be made and able to talk with the experimenter about the changes they might make, did not always actually make the changes at the time of revision. The researchers hypothesize that the writers may have forgotten after a two-day lapse or that some intervening influence caused the writers to change their mind; they suggest that a convergent measure such as concurrent verbal protocols might provide clues to the writers' processes. Likewise, the data of the DeRemer and Bracewell study does not provide evidence of the kinds of knowledge writers were using during the decision-making process.

Feedback. The literature on feedback in instruction and the ways learners in general make use of it holds no surprises: learners who process feedback are more successful than are learners who do not (Gagne et al., 1988). The educational literature, however, generally looks at only one kind of feedback, error correction (Brophy & Good, 1986). Feedback in writing more often takes the form of responses to student texts intended to help students discover more about their topic, to help them see where elaboration might be necessary or interesting to a reader, or to ask clarifying questions (Ziv, 1984; Brannon & Knoblach, 1982). These uses of feedback assume that when writing is a communicative act rather than primarily personal or expressive (Britton et al, 1975), the reactions of readers are important to writers. These interactions of writer and

readers are both social and cultural practices and ongoing tests of whether texts are fulfilling their purposes. Without feedback, writers have recourse only to imagined or virtual readers and it is not unreasonable for inexperienced writers to hold the naive theory that their imagined audience interprets their words in the same way as they do.

Summary

Although inexperienced writers think differently about revision than do experienced, their representations can be influenced with a specific prompt derived from models of the knowledge and the processes of successful writers. If developing writers assume, for example, that others automatically construct what the writers intend by their words, they can be taught how to look at their texts differently. However, even when developing writers are instructed in the processes of revising for readers, they sometimes choose not to revise. If they are choosing freely, with knowledge of alternatives, then their action needs no further study. But if they are failing to revise because they lack knowledge or strategies, their decisions become problems to which pedagogy needs to attend.

A Study of Revising After Feedback

The following study tests whether providing basic writers with a prompt delineating the decision process would influence them to use more feedback than would writers unassisted by a description of the decisions involved in revising.

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insert Figure 1 about here

This study is part of a research agenda (Sitko, 1989) designed first to explore the processes underlying the decisions writers make while revising after receiving

interpretive feedback, and second to test instruction in helping writers to manage these processes.

Research Questions

This protocol study was designed to 1) test the instructional use of a model of the decision processes involved in revising after feedback, 2) examine whether feedback that specifies a text problem is a stronger cue to revision than feedback that summarizes the point of a paragraph or that predicts forthcoming text, and 3) compare the quality of texts revised after feedback with the quality of texts revised without feedback.

Subjects and Procedures

The subjects were twenty-four college freshmen, twelve males and twelve females enrolled in basic writing classes at a northwestern university. All were asked to write a piece of advice to a 12th grade student having difficulty composing a college application essay. Writers were asked to identify one problem that such an applicant might encounter and to suggest several strategies the student might use to solve the problem.

The task (Appendix A), piloted in previous research, conforms to Ruth's (1982) writing assignment criteria, namely, that the subject chosen must be potentially interesting to readers and writers alike. It also conforms to Hilgers' (1982) suggestion that writers have enough information about a topic in order to overcome the problem of unequal familiarity. And it conforms to Brossell's (1986) rhetorical specification criterion that purpose, audience, speaker and subject be supplied. In addition, it has several other advantages. The task provides a specific focus while allowing a variety of individual interpretations. It permits writers to construct a response from a variety of sources such as prior experience and their knowledge of composing. It permits them also to use a variety of modes: description, problem-solution, or narrative. It provides writers with an audience they can easily represent.

No writers in Studies 1 or 2 were unable to produce a text on this topic, nor did any express discomfort with the topic.

One week later the writers received a copy of their original draft to revise. The revision session consisted of their first making any initial changes they wished, then reading transcripts of the feedback and making additional changes (Appendix B). The feedback consisted of transcripts of two 12th grade readers who had periodically summarized the main point of the text and made a prediction about what was likely to follow. The reading method (Appendix C) was based on research (Olson, Duffy, & Mack, 1984; Stauffer, 1969; Vipond & Hunt, 1984) suggesting that good readers engage in these activities as they construct a text. The readings were audiotaped and transcribed, with readers' feedback inserted into the text in a smaller contrasting typeface at the locations where the readers had produced it. Thus the writers had specific information about their readers' constructive processes while they were reading. They saw an ongoing record of their readers' attempts to orient themselves within the text by making sense of the evolving point and speculating about future development.

The following is an example of what one writer received. The text produced by the writer is printed in the typeface "courier," and the feedback of the reader is in boldface.

> A problem that this student may run into could be the fact that he/she may not have read that many books. [1] **I think that this is the thesis right here.** If he/she has not read that many books they must then go to someone who knows them and ask what book they have read and find out if this book does in fact represent them or influence them. [2] **I would predict that this person would deal with who to go to.**
>
> If he/she has read a few books, then they already know which one has influenced them and they can probably write about this

book that has influenced them. [4] **OK, I think right now they're going to deal with how to write the essay, or at least think how the book has influenced them.**

Some strategies are that he/she should/could ask someone, preferably a teacher or student who knows him, what book they think could influence him/her. This person could also ask a librarian about some books that he/she likes or is interested in and then he/she could read the book and maybe write about it and tell how the book has influenced him. [5] **OK, basically right not they're going to go on to talk about . . .** [6] **Right now I'm not quite sure what to predict next. I don't know. I'm really having a problem finding the organization in this paper.**

If the person has read a book that has influenced him, I think that this person would have no problem on writing about a book. [7] **OK, this is the end of the paper. Basically this person mentions going to librarians in order to find a book that would interest them, and find a few books that they can write about in an essay paper.** [8] **I don't think there is anything terribly organized in the paper. It seems basically sort of jumbled--the four paragraphs. I think the "he/she" is a little hard to get over. I know there is a lot of sexist language, but it is fairly confusing. It seems to be sort of a road block while reading a sentence. It gets in the way. I don't know how to correct that, but . . .** [9] **What's best about it is good information.**

After seeing the feedback from two readers, the writers revised their texts, recording think-aloud protocols (Ericsson & Simon, 1984). Writers were given one hour to write and approximately one hour to revise. Control group directions consisted simply of the prompt "revise your paper in light of this feedback" (Appendix D). The control group was free to process the feedback in whatever way they wished. Experimental group directions added a figure of the sequence of subprocesses that characterize successful revision. The figure specified the following subprocesses: assess feedback, locate text, generate solutions, make changes. These subprocesses were selected because they appeared to be the moves crucial to negotiating successful revision. The experimental group was also given suggested questions to use while reading the feedback and revising (Appendix D). The questions resemble the "procedural facilitation" prompts of Bereiter and Scardamalia (1987): Do I understand this feedback? If there is a problem, can I find something in my paper that might have led my reader to say this? Let's see if I can think of some ways to change this. Thus, the experimental group was directed to use both a visual and a verbal representation of how they might process the feedback. To verify that they understood the instruction, all subjects were asked to summarize the directions. At this point they also had an opportunity to clarify the format of the feedback. They had approximately 30 minutes to work on this second revision.

Following the revision, writers were asked to indicate with a plus sign the feedback units they had remembered using. If they had considered revising based on feedback but chose not to do so, they marked that feedback unit with a minus sign.

Analysis

Each of the three questions required a different analysis and will be presented separately..

Specific vs. General Instruction: Effect of Prompt on Use of Feedback. For each subject, data consisted of four types of units of analysis, one unit drawn from the feedback, one

from the concurrent verbal protocols, one from the lists of feedback statements marked by the subjects, and one from the drafts. The units are summarized in Table 1.

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insert Table 1 about here

The units of analysis from each category were charted into a matrix. A feedback unit was considered to be accepted by the writer if there was evidence of revision and a retrospective self-report. Response units were used as confirming evidence. These convergent measures were accepted as an indication that the writer had consciously made changes based on the statement of the reader.

Influence of Type of Feedback. Data consisted of the feedback units marked by the subjects. The units were charted by type, initial (summary, prediction) to terminal (summary, negative, positive). Simple percentages were calculated. Types of units are summarized in Table 2.

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insert Table 2 about here

Quality of Revised Texts. The drafts revised prior to feedback and the drafts revised following feedback were printed, with differences printed in boldface. Counterbalancing was achieved by randomly ordering the paired drafts (coin toss). If a given pair was read in the first third of the texts by one rater, it was read in the second and third segments by other raters.

Three raters, teachers, first selected the better draft of the pair and then estimated the degree of difference between the two drafts, giving the better of the two drafts a number on a scale of zero (no different), to 5 (much different). Rater directions are included in Appendix E. Average inter-rater correlation (Pearson *r*) was

.13 on scoring. The highest pairwise correlation was .33; one pair of raters had a negative correlation of -.14.

Results

The goals of this study were 1) to test whether encouraging writers to follow more closely a hypothesized sequence of revision subprocesses would affect the degree to which they accepted feedback, and 2) to test whether feedback that specifies a reader's problem is a stronger cue to action than feedback that summarizes the point of a text or that predicts forthcoming text, and 3) to test whether the revised texts of the writers given the more specific revision prompt would be judged to be more different from texts revised previous to feedback than would the texts of writers given a more general prompt..

The first hypothesis was based on the assumption that it might be possible for writers to change their path through the revision process if they were directed to follow the sequence. This hypothesis stated that writers who are informed about and directed to use a specific revision strategy (experimental group) would respond to more feedback than would writers given a general prompt to revise (control group). The independent variable was the prompt, either a specific strategy prompt or a general prompt to revise. The dependent variable was the proportion of feedback statements to which the writers responded. Writer response was verified in three ways: protocol episodes showing that writers are revising in response to feedback, a visible change to the text, and a self-report that the writer had used the feedback.

Specific vs. General Instruction: Effect of Prompt on Use of Feedback. The first question addressed the instructional issue of whether writers could be directed to follow what had been shown to be a successful revision sequence. The proportion of feedback units accepted by subjects in each group was compared. A feedback unit was considered to be accepted if there were evidence of revision and at least a retrospective self-report. If the prompt describing the revision sequence had the expected effect, we would expect the

mean percentage of units accepted by the experimental group to be significantly higher than the mean percentage of units accepted by the control group.

The percentage of feedback accepted by the experimental and control groups was equal at .22.. The differing prompts appear to have had no effect on use of feedback to revise.

Influence of Type of Feedback. The second question addressed the type and placement of feedback. This hypothesis was based on the assumption that some types of feedback, specifically terminal feedback specifying a problem, would influence writers' revising more heavily than would other types of feedback. Number of feedback units available to writers in each group and the percentage the writers used during revision are summarized in Table 3.

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insert Table 3 about here

Writers had available on average between 15 to 18 feedback units, with one writer receiving 9. Both experimental and control groups responded to the same proportion (.22) of feedback. Feedback units 1, a summary of the main point, and 2, a prediction about forthcoming text, appeared at the end of the first paragraph. Both groups responded about equally to these units. Units 3-6 appeared in succeeding paragraphs or text segments. Again both groups responded about equally. Units 7-9 appeared at the end of the text, with Unit 8 representing what readers found confusing or underdeveloped. Writers in both groups responded to .75 of these comments. It is clear that writers in both groups responded about equally to all types of feedback, with writers responding most to negative comments on the whole text.

Quality of Revised Texts. The third question addressed text quality. The analysis was designed to test whether responding to real readers would result in higher quality texts. If this were so, then the post-feedback ratings of both experimental and control groups

should be higher. Three raters assigned a difference score to the paper in each pair which they judged to be of higher quality. The difference score could range from 0 (no difference) to 5 (great difference). Thus each post-feedback draft could have a rating scaled from -5 to +5. If the pre-feedback and post-feedback papers were judged to be about the same, then the mean difference should be zero. If, however, the post-feedback papers were judged to be of higher quality, then the mean difference would be significantly different from zero. A *t* test on the scores shows that the post-feedback drafts were judged to be of higher quality (t=2.86; $p<.005$).

Raters judged the post-feedback drafts of the experimental group to be slightly more different (mean=4.5) than those of the control group (mean=3.3). Although the means appear to be dissimilar, the difference is not significant (t=.707, NS). The differing prompts appear to have had no effect on rater judgment of quality.

Because of the similarity of the results between groups, a post-hoc analysis was conducted on the data to check whether the experimental group followed directions. The results indicate that, similar to previous studies, both the experimental and control groups followed the suggested sequence. No matter which prompt they received, writers who revised followed the sequence: assess feedback, test text, set a goal and select a strategy. (Attributions appeared in the retrospective reports more often than in the protocols.)

Discussion

Two groups of college freshmen revised their texts after receiving feedback from members of their intended audience. The experimental group received an explicit prompt delineating the decision process; the control received a prompt to "do their best to revise." The two groups performed about equally in the number of feedback units used, types of feedback units to which they responded, and text improvement.

Several explanations for the similar performances of the control and experimental groups are reasonable. The first is that the form of the feedback is in

itself a strong stimulus to action. Interpretive readings of the point and predictions provide writers with direct evidence about how readers comprehend a text. The writers can compare readers' interpretations with their own intentions. Presented with contrary, disconfirming evidence about the success of their texts, the writers in this study as in previous studies changed them. By so doing they demonstrated their belief that the texts were rhetorical and instrumental, capable of influencing their readers. If they had not believed that their words had power to influence, they would have had no reason to change their texts. The form of the feedback, then, may have been sufficiently strong to stimulate writer action. This conjecture is supported by the results of the second analysis examining the type of feedback to which writers responded. Expressions of confusion, miscomprehension, accusations of disorganization, and disagreements all provoked a response.

A second point concerns the design of the strategy instruction. In its present form, the strategic prompt is a single cue, not an instruction or "retraining." The prompt may be insufficient to change students' representation of the task of revising after feedback. Students' view of feedback may predispose them to look only for negative commentary, ignoring other signals of reader miscomprehension such as inaccurate predictions. In addition, patterns of response may not be affected by one session. Brown (1987) has suggested that strategy retraining may require an interactive design rather than one which attempts to hold the experimenter at a distance. In an interactive design, the learner would have an opportunity for questions, feedback, and testing. Such cognitive processes, Brown suggests, may be at the heart of strategy construction. Habituated to respond to feedback in a certain way, learners may need more assistance in considering options than is provided by a prompt. Instructional use of the interpretive reading method in the classroom (Sitko, in press) where discussion is interactive may provide additional clues about strategy training. The data would not support the observation, for example, that writers considered an array of options before deciding on

a course of action. Rereading feedback appeared to be the option most used. It may be that developing writers would profit from a presentation of options that would help them recognize when they were starting down one of these paths as well as provide guidance toward their goal of revision. Likewise, sustained instruction, especially instruction that includes discussion of alternatives and feedback about choices, could help writers to transform old habits and generate a new way of approaching revision.

Conclusion

New developments in theory and methodology have made possible coherent approaches to learning that take into account students' thinking processes in addition to the instructional methods and materials they work with. It makes pedagogical sense to work with these thinking processes rather than having feedback distract the attention of developing writers. Studies of their thinking processes can result in the delineation of alternatives for students who may not devise them on their own. Revising after feedback is one such easily accessible decision making process which deserves our further attention.

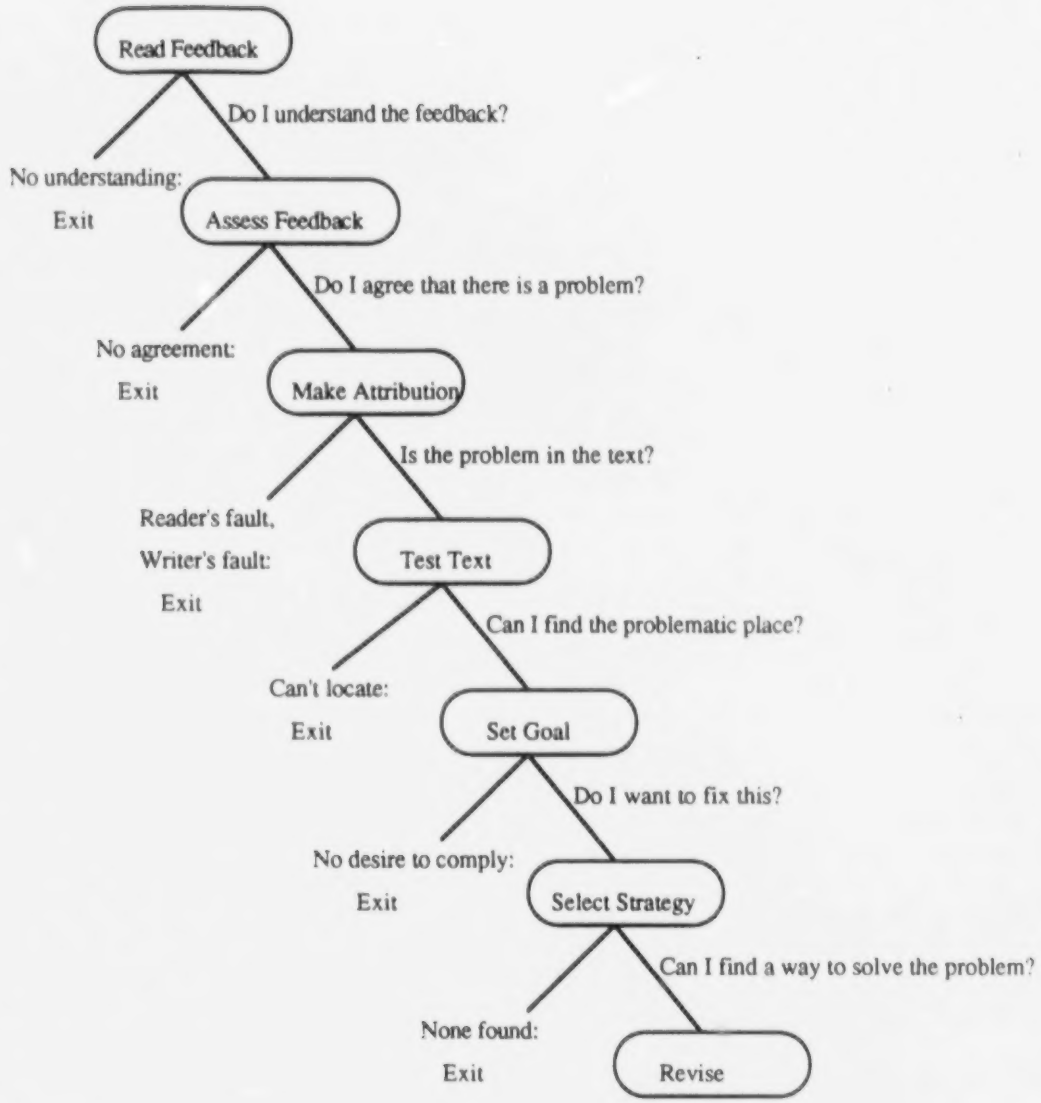

Figure 1. Model of Revising after Feedback

Table 1

Coding Categories

1. Feedback units
    1. Within-text summaries and predictions
    2. End-of-text summaries and evaluations
2. Response episodes

    Episodes that begin with the reading of feedback and end with the reading of another piece of feedback
3. Revisions

    Visible changes marked on the texts
4. Self-report units

    Plus signs marking feedback units

Table 2

Feedback Categories

Initial Feedback Units:

1. Summary of paragraph 1
2. Prediction about paragraph 2

Intermediate Feedback Units: Within Text

3,5. Summary of paragraph or section

4,6. Prediction about forthcoming paragraph

Terminal Feedback Units: Post Text

7. Summary of entire text
8. Report of confusing material
9. Report of clear material

Table 3

Percentages of Feedback Used During Revision

		Feedback Units									
		1	2	3	4	5	6	7	8	9	Total
Exp	Number	24	21	23	22	24	19	21	24	20	198
	Percent Used	.29	.05	.22	.14	.25	.00	.14	.75	.05	.22
Ctr	Number	24	23	21	20	22	23	19	21	19	193
	Percent Used	.06	.13	.19	.15	.14	.04	.00	.76	.21	.22

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Appendix A

Composing Task Directions

From the time you read the task please say out loud into the tape recorder everything that you catch going through your mind. Try to capture as much as you can, doing the writing task in as normal a way as you are able. You will have 45 minutes to complete this first draft.

Turn on the tape recorder and start thinking aloud now.

Task:

> You know a 12th grade student who has trouble writing. The student has to write a 300-word essay for a college application, and has come to you for help. The essay requires that the applicant choose a book that has been significant in his or her life, and explain in what way(s) the work influenced him or her.
>
> In a short paper, describe one problem the 12th grade student might have in writing this essay, and suggest several strategies that he or she might use to solve the problem.

Remember that your paper is a draft, and that you will have an opportunity to revise it in one week, after seeing how several 12th grade readers interpret it.

Appendix B

Initial Revision Task Directions

Thank you for participating in this research. In the second session, you are asked to revise your first draft in any way you wish. You will have 40 minutes to complete the three steps described below. At the end of the session, I will ask you to do one ten-minute task. Thus the session will last about 50 minutes.

From the time you read the task please say out loud into the tape recorder everything that you catch going through your mind. Try to capture as much as you can of what you are thinking as you work.

The revision task has three steps.

> Step 1: Make any changes you wish to the typed copy of your first draft. Please use black pencil. Do not erase. Draw a line through any words you might want to erase.
>
> Step 2: When you have completed step 1, ask me for the transcripts of your two readers. These transcripts have been typed from tapes of your readers' interpretations of your draft. You may mark these copies if you wish. Keep talking aloud as you work with this feedback.
>
> Step 3: Do your best to revise the typed copy of your draft in light of the feedback. Please use pen. Do not erase. Draw a line through any words you might want to erase.

I will collect all of your materials.

Do you have any questions?

Appendix C

Reader Directions

This folder contains several first drafts of papers about writing a college application essay. Here is the essay question posed by the college:

> *Choose a book that has influenced you and explain some way(s) that it has been significant in your life.*

The writers of the papers in your folders

1. identify one problem a 12th grade student might have in writing this application essay, and
2. suggest several strategies the student might use to solve the problem.

I am interested in how readers interpret these papers. Your task is to read the essays, stopping periodically to summarize and to predict where you think the paper is going. The steps in this reading are described on the yellow cards.

Step 1

(Remember to keep talking aloud as you read and respond to this paper.)

You will see the first part of the paper printed one sentence at a time. The new sentence will be highlighted in yellow.

After each sentence ask yourself:

Is this the problem the paper will be about?
If no, read the next sentence
If yes, do two things:
1. Restate the problem in your own words.
2. Predict what you think will come next in the paper.
3. Then go to Step 2 on the yellow card. Use the sheets in the yellow paper clip.

Step 2. Here is the paper section by section. At the end of each page, answer:

1. What is the point of this section?
   How does it fit with the paper so far?
2. What do you predict is coming next?

At the end of the paper, go to Step 3, yellow card.

Step 3. Now that you have read the whole paper, please answer the following questions:

1. Summarize the problem and strategies the writer talked about.
2. Is there anything confusing in the paper? Anything you disagreed with or needed more information about?
3. What do you think is best about this paper?

Appendix D

Revision Prompts: Experimental and Control Groups

Experimental and Control:

These are the transcripts of two 12th grade readers. As they read through your paper, the readers were asked to periodically

1) summarize main points
2) say what they thought would come next

At the end of the paper, they

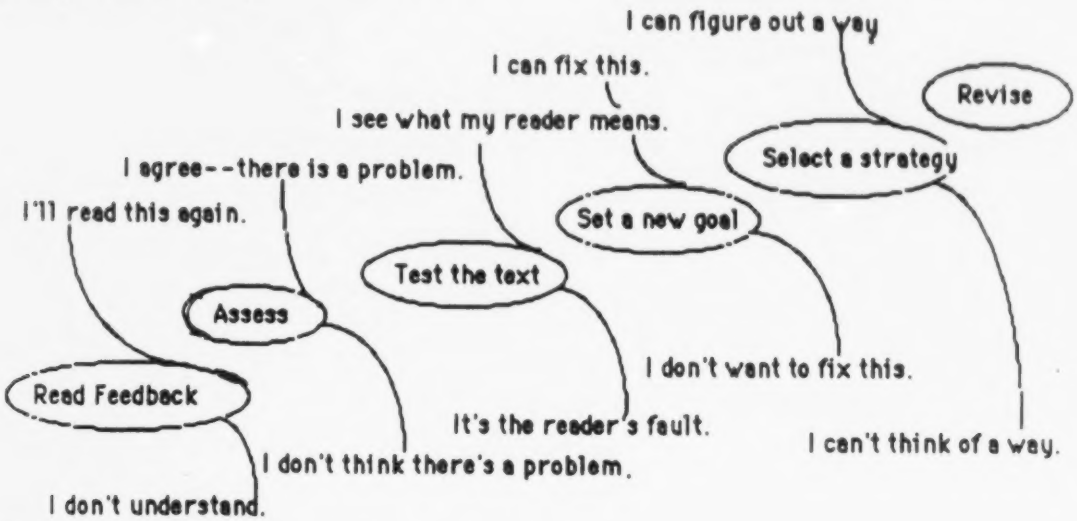
3) summarized the paper
4) said if they had any trouble with it
5) said what they thought was best about it.

The next step in your task will be Step 3, to revise your paper in light of this feedback.

(Experimental only)
The next step in your task will be Step 3, to revise your paper in light of this feedback. Feedback from readers is an opportunity to see your paper in hew ways and to make good changes. You will find yourself thinking about the feedback as you read it.

Study this figure. Notice how successful writers use the feedack to help them detect problems. notice also how some writers "drop out" of the process.

Use the figure as you work with your own feedback. Do your best to revise in light of what your readers say.


I can figure out a way
I can fix this.
Revise
I see what my reader means.
Select a strategy
I agree--there is a problem.
I'll read this again.
Set a new goal
Test the text
Assess
I don't want to fix this.
Read Feedback
It's the reader's fault.
I can't think of a way.
I don't think there's a problem.
I don't understand.

Experimental and Control:

Because you are doing several things in the time remaining, I want to make sure that you understand the directions. Please repeat them to me now. I'll let you know how much time you have remaining.

Appendix E

Rater Directions

You have a set of two versions of 24 papers. The papers were written in response to the following task:

> You know a 12th grade student who has trouble writing. The student has to write a 300-word essay for a college application, and has come to you for help. The essay requires that the applicant choose a book that has been significant in his or her life, and explain in what way(s) the work influenced him or her.
>
> In a short paper, describe one problem the 12th-grade student might have in writing this essay, and suggest several strategies that he or she might use to solve the problem.

Step 1. From each pair of papers, select the one that is better. Some pairs will be quite different. Others may vary by only a word or two. The differences between versions have been indicated in boldface.

Step 2. On a scale of 0 (no different--papers are exactly the same) to 5 (much different), assign a number to the version you prefer. The number will describe the degree of difference between the two versions. Use the full range of numbers, 0 - 5. Mark the number on the version you prefer.

You are free to complete these steps in any way you wish, to make notes on the papers, to adjust numbers, etc.

Step 3. After you have completed your choices and ratings, record briefly what you remember thinking about as you decided on each number.

Two sample pairs are provided for practice and questions.